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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,282	04/12/2001	Dan A. Steinberg	Haleos 2001-124	2027

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HALEOS, INC.
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EXAMINER

ZARROLI, MICHAEL C

ART UNIT

PAPER NUMBER

2839

DATE MAILED: 08/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/833,282

Applicant(s)

STEINBERG, DAN A.

Examiner

Michael C. Zarroli

Art Unit

2839

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-76 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40, 45, 46, 48-51, 59-66, 69-73, 75 and 76 is/are rejected.
- 7) ☒ Claim(s) 41-44, 47, 52-58, 67, 68 and 74 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the orthogonal translation between the first and second substrates must be shown or the feature(s) canceled from the claim(s) (e.g. claim 4). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “basechip having base grooves ...to provide channels” must be shown or the feature(s) canceled from the claim(s) (e.g. claim 24). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 46 and 47 are objected to because of the following informality:
Antecedent problem with “the roller element.” Appropriate correction is required.
4. Claims 49-51 are objected to because of the following informality: The
applicant should consider changing “relative to” and “related to” to --to match--.
Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims 1-37, 48-51, 59-62, 65-66 and, 69-70 are rejected under 35
U.S.C. 112, second paragraph, as being indefinite for failing to particularly point
out and distinctly claim the subject matter which applicant regards as the invention.

In line four of claim 1, the “fiber-retaining channel disposed therein” is
confusing. Which substrate contains this channel? Or, do both substrates
contain the channel? The examiner will interpret this claim to mean that this
channel is in the front face of both substrates.

The term "registration" or "register" in claims 2, 10, 18, 21, 27, 59-60 and, 69-70 is a relative term, which renders the claims indefinite. The term "registration" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. How are components that are in registration or even "partial registration" with each other related? Are they in contact, aligned, staggered etc.?

The term "communicates" or "communication" in claims 16, 19 and, 61-62 is relative terms, which render the claims indefinite. The term "communicates" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The relationship is indefinite between first and second components (e.g. grooves) that "communicate" with each other and unknown from the claim language. As with the registering term above, how are two components that are in "communication" with each other structurally positioned?

✓ Claims 24, 31 and, 65 are not understood. How does a chip with grooves “provide” the channels? Are these new base grooves (or just grooves in claim 65) the same as the channels? I thought the grooves held the friction element and the channels held the fibers.

✓ Claims 26-27 and 33-34 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: For this switch how are the base chip and lidchip related? A “complimentary” socket ‘registers’ the basechip with the lidchip?

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Claims 23 and, 28-29 are indefinite because the examiner has no idea how one channel can be comprised of a plurality of channels?

✓ The terms "is related to" or “relative to” in claims 48-51 are relative terms, which renders the claims indefinite. The terms "is related to" or “relative to” are not defined by the claims, the specification does not provide a standard

for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Is the applicant trying to claim that the number of detents matches the number of channels?

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-2, 5, 11-14, 17-18, 22-24, 28-30, 35 and, 37 (as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaplow et al in view of admitted art Laor (US 6101299).

Kaplow discloses (col. 1 lines 5-10) a fiber optic array switch (fig. 4A) first (37) and second substrates (38). Each substrate comprises a front and rear face with the front faces facing each other (fig. 4A). A fiber-retaining channel (unnumbered fig. 4A & 49) is disposed in the front faces. Kaplow discloses a first groove (unnumbered fig. 4A) disposed along a longitudinal axis (30, 31) within the front face. A friction-reducing element (45-48)

disposed in these grooves so that the first substrate can translate with respect to the second substrate along the direction of the longitudinal axis of the groove (figures 6, 7 & 8A).

Kaplow does not disclose that the fiber-retaining channel extend from the front face to the rear.

Laor discloses a fiber optic array switch (10) with fiber retaining channels (22) extending from the front face to the rear face of first (16) and second (18) substrates.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to extend the fiber-retaining channels of Kaplow from the front to rear of the substrates as done by Laor. It has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Regarding claim 5 Kaplow discloses: that the groove in the first substrate is dimensioned so that the friction-reducing element is confined in the groove (fig. 5).

Regarding claims 11-14 and, 17-18 Kaplow discloses: a second groove (unnumbered fig. 4A) in the front face of the first and second substrates and a second friction-reducing element (45, 46) in these second grooves. The

second groove in the first substrate is parallel to the first groove (figures) and dimensioned so that the second friction-reducing element is confined within the groove (fig. 5).

Regarding claim 22 Kaplow does not disclose that the at least one channel is disposed between first and second grooves of the first substrate. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to place the channels of Kaplow between the grooves of Kaplow. It has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Regarding claims 23-24 & 28-30 Laor discloses: a two dimensional linear array of channels (fig. 1A).

Regarding claims 35, and 37: Kaplow discloses a friction-reducing element that is spherical (45 & 46 at fig. 4B).

9. Claims 38-40, 45-46, 63-64, 71-73 and, 75-76 (as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted art Basavanhally et al (US 5337384) in view of Kaplow et al (US 5440655).

Basavanhally discloses a fiber optic array switch (first sentence of abstract) with a first (12, 14) and second array (13, 15). Each array has a front face that is disposed facing the other (fig. 1). Basavanhally also discloses a

friction-reducing element (23, 24) “intermediate” these faces that aid when the arrays are aligned to effect switching.

Basavanhally does not disclose grooves.

Kaplow discloses an optical fiber switch (abstract first two sentences) with a first groove along a first path within the front face (fig. 11) of a first array (90 or 91) and, a second groove along a second path in the front face (fig. 11) of a second array (92).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the first and second grooves of Kaplow with the device of Basavanhally. The motivation for doing so would have been to eliminate some of the expensive alignment equipment of Basavanhally. With these alignment grooves of Kaplow combined with the device of Basavanhally, the alignment components in for example figure 4 could be eliminated.

Regarding claim 39 Kaplow discloses a friction-reducing element that includes a first roller element (45) in a first groove (49) of a first array (38) and in contact with (fig. 4A) the face of the second array (37) thereby allowing the first array to be displaced (figures 6 & 7) relative to the second array along the direction of the first path (fig. 4A).

Regarding claim 40 Kaplow discloses that the second groove is disposed relative to the first groove to provide a single path of movement between the arrays (figures 8A & 8B).

Regarding claim 45 Kaplow discloses that the first and second grooves are the same length (fig. 11).

Regarding claim 46 Kaplow discloses that the roller element is confined in the first groove during relative displacement of the two arrays (fig. 4A).

Regarding claims 63-64 and, 71-72 Basavanhally discloses that the first array is two dimensional and comprised of a plurality of linear fiber channels (16).

Regarding claim 73 Basavanhally discloses that a roller element is spherical (fig. 1).

Regarding claims 75-76 Basavanhally discloses that the first array holds at least one optical fiber (38 or 49).

Allowable Subject Matter

10. Claims 41-44, 47, 52-58, 67-68 and, 74 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 10, 16, 19, 21, 25-27, 31-34, 36, 48-51, 59-62, 65-66 and, 69-70 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: Grooves in the first and second substrates have the same length. Groove in the first substrate is orthogonal to the groove in the second substrate. Detents in the grooves and a third groove in each of the first and second substrates. Cylindrical friction reducing elements. A basechip integrally formed with the first substrate. A first array of fiber holding channels includes a frame, passageway and, grooves in the passageway to provide fiber channels.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ackerman et al and Pimpinella (US 5123073 & US 5257332) teach substrates grooves and friction reducing elements. Tabuchi teaches a substrate integral with a chip and detents in grooves. Boudreau et al and Seibold et al teach substrates with grooves, detents, and friction reducing elements. Blonder teaches a substrate with grooves that meet at an angle. McCullough teaches substrates that align to link optical fibers in channels.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Zarroli whose telephone number is 703-305-0608. The examiner can normally be reached on 7:30 to 3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 703-308-3119. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Michael C. Zarroli
Examiner
Art Unit 2839

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August 22, 2002